

AMENDMENTS TO THE CLAIMS

Following is a listing of all claims in the present application, which listing supersedes all previously presented claims:

Listing of Claims:

1. (Currently Amended) An inductively coupled antenna, ~~for installation on a reaction chamber of an inductively coupled plasma (ICP) processing apparatus and for connection to a radio frequency (RF) power source to induce an electric field for ionizing a reactant gas injected into the reaction chamber and for generating plasma, the inductively coupled antenna comprising a coil having a plurality of turns including an outermost turn and a plurality of inner turns, wherein a current flowing through the outermost turn is larger than a current flowing through connected in parallel with the plurality of inner turns and a sum of lengths of the plurality of inner turns is longer than a length of the outermost turn.~~
2. (Original) The inductively coupled antenna as claimed in claim 1, wherein the outermost turn and the plurality of inner turns are connected to the RF power supply in parallel and the plurality of inner turns are connected to each other in series.
3. (Cancelled).
4. (Original) The inductively coupled antenna as claimed in claim 1, wherein the plurality of turns is concentrically formed.
5. (Original) The inductively coupled antenna as claimed in claim 1, wherein the plurality of turns is formed of a single conductive line.
6. (Currently Amended) [[The]] An inductively coupled antenna, ~~as claimed in claim 1 further comprising:~~  
a coil having a plurality of turns including an outermost turn and a plurality of inner turns, wherein the coil includes  
a conductive metal tube having a cooling path; and

a conductive metal strip that is electrically and thermally connected to a lower portion of the conductive metal tube and is coextensive with the conductive metal tube.

7. (Original) The inductively coupled antenna as claimed in claim 6, wherein the conductive metal tube is formed of copper.

8. (Original) The inductively coupled antenna as claimed in claim 6, wherein the conductive metal tube has a circular cross-section.

9. (Original) The inductively coupled antenna as claimed in claim 6, wherein the conductive metal strip has a tall and narrow rectangular cross-section.

10. (Original) The inductively coupled antenna as claimed in claim 6, wherein a height of the metal strip gradually decreases from a center portion to an edge portion of the antenna.

11. (Currently Amended) An inductively coupled plasma (ICP) processing apparatus, comprising:

a reaction chamber maintained in a vacuum state;

an antenna installed on the reaction chamber to induce an electric field for ionizing a reactant gas injected into the reaction chamber and for generating plasma; and

a RF power source that is connected to the antenna to supply RF power,

wherein the antenna is formed of a coil having a plurality of turns, including an outermost turn and a plurality of inner turns, [[and]] wherein a current flowing through the outermost turn is larger than a current flowing through is connected in parallel with the plurality of inner turns and wherein a sum of lengths of the plurality of inner turns is longer than a length of the outermost turn.

12. (Original) The ICP processing apparatus as claimed in claim 11, wherein the outermost turn and the plurality of inner turns are connected to the RF power supply in parallel and the plurality of inner turns are connected to each other in series.

13. (Cancelled)..

14. (Original) The ICP processing apparatus as claimed in claim 11, wherein the plurality of turns is concentrically formed.

15. (Original) The ICP processing apparatus as claimed in claim 11, wherein the plurality of turns is formed of a single conductive line.

16. (Original) ~~The ICP~~ An inductively coupled plasma (ICP) processing apparatus, as claimed in claim 11 further comprising:

a reaction chamber maintained in a vacuum state;

an antenna installed on the reaction chamber to induce an electric field for ionizing a reactant gas injected into the reaction chamber and for generating plasma; and

a RF power source that is connected to the antenna to supply RF power,

wherein the antenna is formed of a coil having a plurality of turns, including an outermost turn and a plurality of inner turns, ~~wherein a current flowing through the outermost turn is larger than a current flowing through the plurality of inner turns~~, and wherein the coil includes

a conductive metal tube having a cooling path; and

a conductive metal strip that is electrically and thermally connected to a lower portion of the conductive metal tube and coextensive with the conductive metal tube.

17. (Original) The ICP processing apparatus as claimed in claim 16, wherein the conductive metal tube is formed of copper.

18. (Original) The ICP processing apparatus as claimed in claim 16, wherein the conductive metal tube has a circular cross-section.

19. (Original) The ICP processing apparatus as claimed in claim 16, wherein the conductive metal strip has a tall and narrow rectangular cross-section.

20. (Original) The ICP processing apparatus as claimed in claim 16, wherein a height of the metal strip gradually decreases from a center portion to an edge portion of the antenna.

21. (New) The inductively coupled antenna, as claimed in claim 1, wherein the coil further comprises:

a conductive metal tube having a cooling path; and

a conductive metal strip that is electrically and thermally connected to the conductive metal tube and is coextensive with the conductive metal tube.

22. (New) The ICP processing apparatus as claimed in claim 11, wherein the coil further comprises:

a conductive metal tube having a cooling path; and

a conductive metal strip that is electrically and thermally connected to the conductive metal tube and is coextensive with the conductive metal tube.